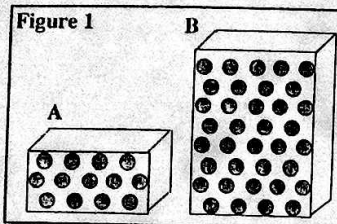


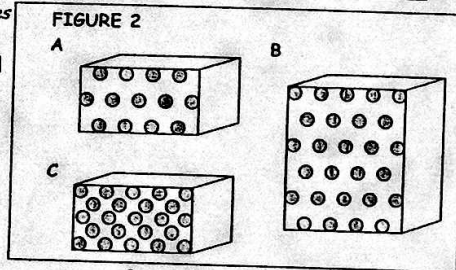
1. Study the matter shown in Figure 1. Each dot represents a particle of matter. [Assume the particles are uniformly distributed throughout each object, and particles of the same size have the same mass.]



- a. In the table below, show how the masses, volumes, and densities of A and B compare by adding the symbol  $<$ ,  $>$ , or  $=$  to the statement in the second column.
- b. Explain your reasoning for each answer in the last column.

Property	Relationship	Reasoning
Mass	A _____ B	
Volume	A _____ B	
Density	A _____ B	

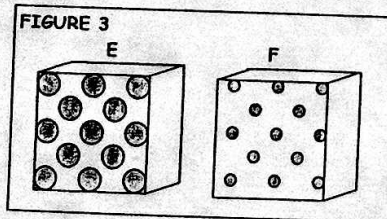
2. Study the matter in Figure 2. [Assume the particles are uniformly distributed throughout each object, and particles of the same size have the same mass.]



- a. In the table below show how the masses, volumes, and densities compare by adding the symbol  $<$ ,  $>$ , or  $=$  to the statement in the second column.
- b. Explain your reasoning for each answer in the last column.

Property	Relationship	Reasoning
Mass	A _____ B A _____ C	
Volume	A _____ B A _____ C	
Density	A _____ B A _____ C	

4. Is object E or object F more dense? [Assume the particles are uniformly distributed throughout each object, and particles with a larger size have a larger mass.] Explain your reasoning.



## Density Worksheet

Name \_\_\_\_\_

- Define mass?
- Define volume?
- Define density and show the formula for calculating density.
- Why does changing the shape of an object have no effect on the density of that object?
- Aluminum is used to make airplanes. Cast iron is used to make weightlifting equipment. Explain why the densities of these metals make them useful for these purposes?
- What is the density of water? Remember for water  $1\text{g}=1\text{ml}=1\text{cm}^3$
- Why does an air bubble rise to the surface of a glass of water?
- Calculate the densities of the following objects. Remember to place units after each number.
 

Object A	length = 6cm	width = 3cm	height = 1cm	mass = 36g
	volume = _____	density = _____		
Object B	length = 10cm	width = 5cm	height = 2cm	mass = 300g
	volume = _____	density = _____		
Object C	Use the water displacement method to determine the density of object C (silly putty). initial water level in graduated cylinder = 25ml final water level after placing silly putty into graduated cylinder = 29ml mass of silly putty=8g			



volume = \_\_\_\_\_

density = \_\_\_\_\_

9. Which of the following materials will float on water (density 1 g/ml)?

air = .001 g/cm<sup>3</sup>

corn oil = .93 g/cm<sup>3</sup>

glycerine = 1.26 g/cm<sup>3</sup>

corn syrup = 1.38 g/cm<sup>3</sup>

wood = .85 g/cm<sup>3</sup>

steel = 7.81 g/cm<sup>3</sup>

rubber = 1.34 g/cm<sup>3</sup>

ice = .92 g/cm<sup>3</sup>

water = 1.00 g/cm<sup>3</sup>

10. Assuming the materials don't mix, show how the materials would "stack up" in a graduated cylinder.